Color Camera Block

EVI-330/330T (NTSC)
EVI-331/331T (PAL)

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1. GENERAL

1 Outline

The EVI-330 (NTSC)/EVI-331 (PAL) is an ultra-compact CCD camera block with 12 times zoom, auto-focus lens. Adopting the 1/3 inch 380000/440000 effective pixels CCD, high resolution of 460 lines has been realized.

Its functions such as zoom control, focus control, selection between automatic-compensation white balance (AWB), one-push white balance, and preset white balance, electronic shutter speed up to 1/10000 seconds, 24-level bright control (brightness control function), backlight compensation function allow brightness to be adjusted extensively. Its position preset function allows its camera functions to be preset in six different ways.

The EVI-330T (NTSC)/EVI-331T (PAL) is also equipped with the steady shot (Electoronic Image Stabirizer) function and electronic zoom function. The electronic zoom realizes 2 times zoom and 24 times zoom with the optical zoom, and can be position-preset.

The EVI-330/330T/331/331T uses the DSP which enables camera functions to be controlled digitally.

The video outputs consist of the composite output and YC output.

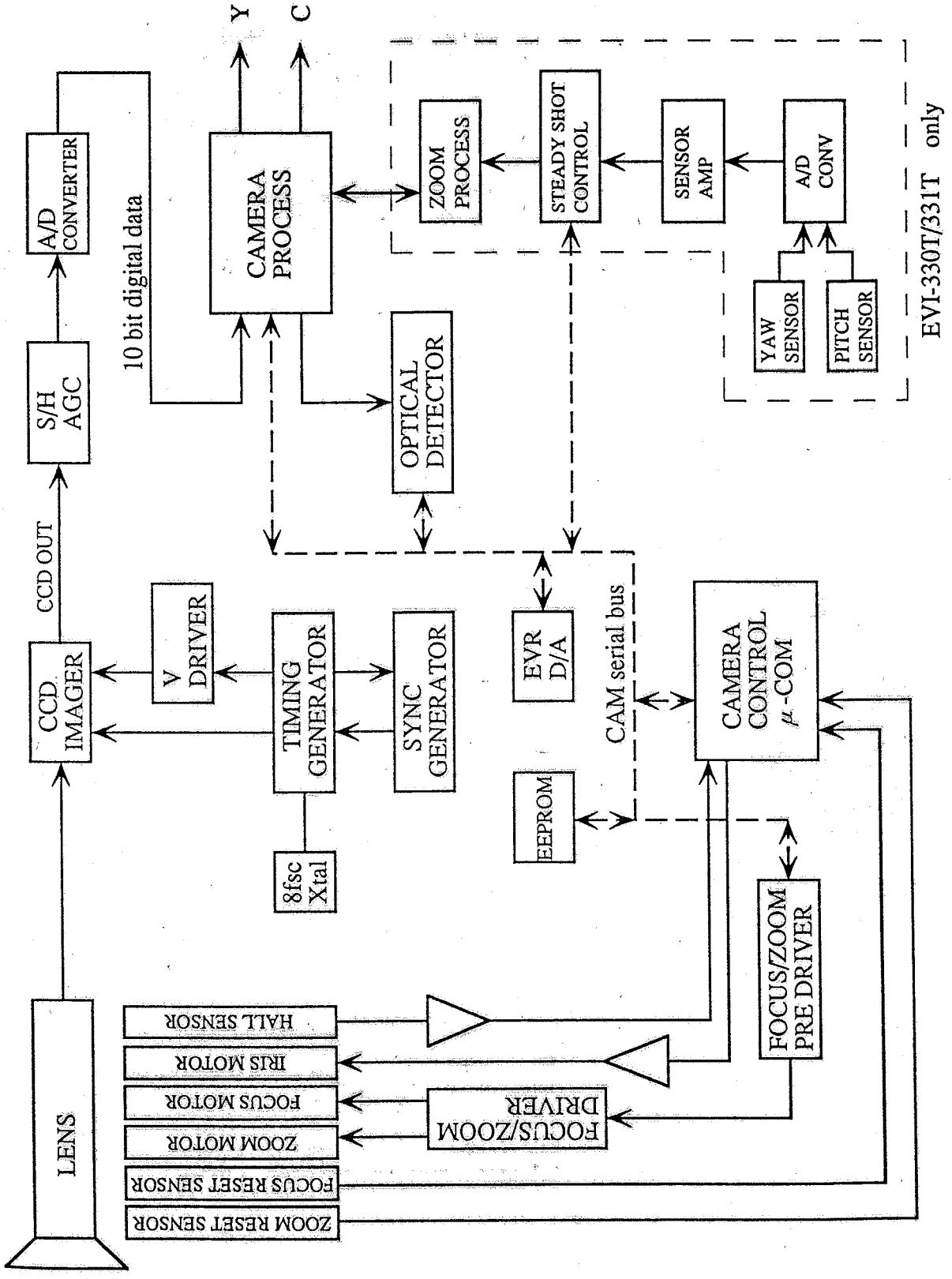
The input power supply is 6V to 12V.

SPECIFICATION

	EVI-330 (NTSC)	EVI-331 (PAL)	EVI-330T (NTSC)	EVI-331T (PAL)
Image Sensor	1/3" IT CCD			
Pixels / Effective Pixels	410 K / 380 K pixels	470 K/ 440 K pixels	470 K/ 300 K pixels	570 K / 350 K pixels
Picture Elements	768(H)×494(V)	752(H)×582(V)	622(H)×485(V)	615(H)×575(V)
H. Resolution (Center)	more than 460 TV lines	more than 450 TV lines	more than 380 TV lines	more than 380 TV lines
V. Resolution (Center)	more than 350 TV lines	more than 400TV lines	more than 350 TV lines	more than 400 TV lines
Lens	12 × Zoom f=5.4 to 64.8mm F1.8 ~ 2.7 Wide Macro, Auto Fucus(Inner Focus System)			
E. Zoom	----------	----------	(2×12=) 24 × Zoom	
Angle of View (H) (V)	approx 48.8 degrees (wide end) to 4.4 degrees (tele end) approx 37.6 degrees (wide end) to 3.3 degrees (tele end)		approx 41.4 degrees (wide end) to 3.7 degrees (tele end) approx 31.7 degrees (wide end) to 2.8 degrees (tele end)	
Lens constructure	9 elements in 6 groups (including 2 aspherical lenses)			
Shortest Subject Dist.	10mm (wide end) : 800mm (tele end)			
Video Out (75Ω Terminated)	Y : VS1.0Vp-p sync negative C : Burst 0.286Vp-p VBS : 1.0Vp-p composite	Y : VS1.0Vp-p sync negative C : Burst 0.300Vp-p VBS : 1.0Vp-p composite	Y : VS1.0Vp-p sync negative C : Burst 0.286Vp-p VBS : 1.0Vp-p composite	Y : VS1.0Vp-p sync negative C : Burst 0.300Vp-p VBS : 1.0Vp-p composite
Min. Illumination	7 Lux F1.8 (more than 50 IRE)			8 Lux F1.8 (more than 50 IRE)
S/N Ratio	more than 48dB			
White Balance	TTL Auto tracing, One push Hold, Indoor Preset, Outdoor Preset			
Electronic Shutter	27 step (1/60 sec. up to 1/10000 sec.)	28 step (1/50 sec. up to 1/10000 sec.)	27 step (1/60 sec. up to 1/10000 sec.)	28 step (1/50 sec. up to 1/10000 sec.)
Flickerless	Auto			
Operating Temperature	0°C to 50°C			
Storage Temperature	-20°C to 60°C			
Operating Humidity	30% to 85%			
Storage Humidity	20% to 90%			
Power Requirements	DC 6 to 12V (steady state 2.4W, drive state 3.2W at 6V DC)		DC 6 to 12V (steady state 2.6W, drive state 3.4W at 6V DC)	
Dimensions (W/H/D)	53×51×100 mm		53×51×111mm	
Weight	205g		220g	
Spurious radiation	FCC Class A			
Supplied accessary	2P harness, 5P harness, 6P harness, 7P harness, 27P flat cable			

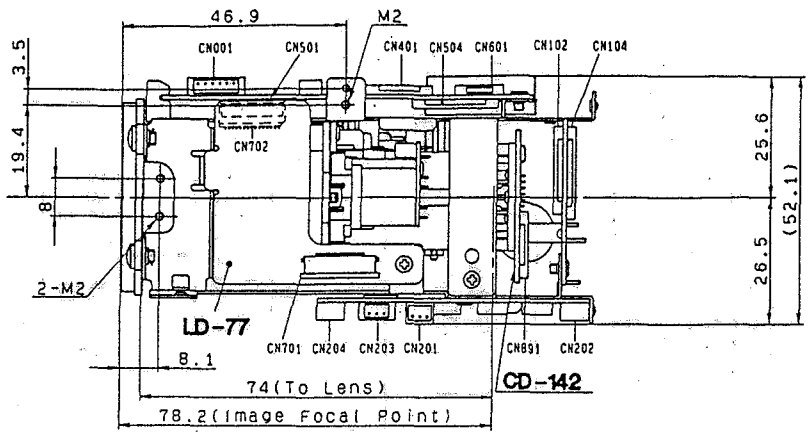
* Specifications are subject to change without notice.

3 Block Diagram

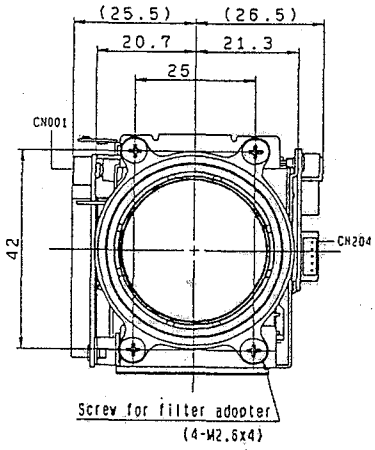


4 Dimensions

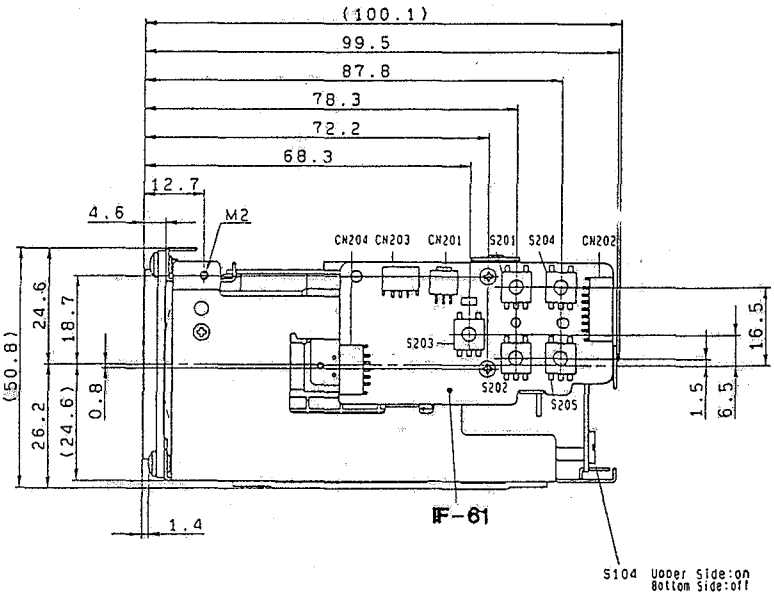
EVI-330/331



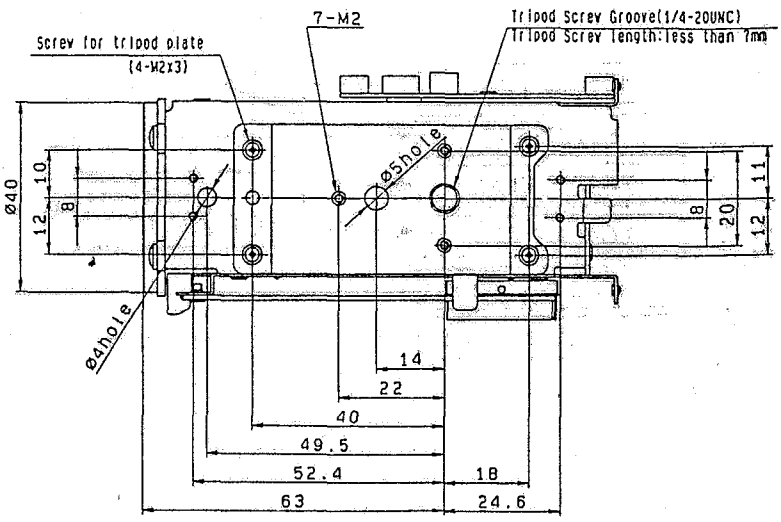
THE TOP FIGURE



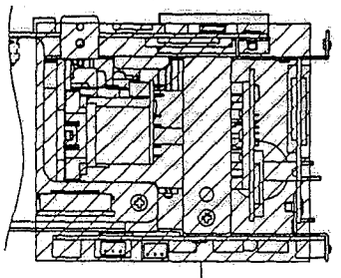
THE FRONT FIGURE



THE RIGHT SIDE FIGURE



THE BOTTOM FIGURE



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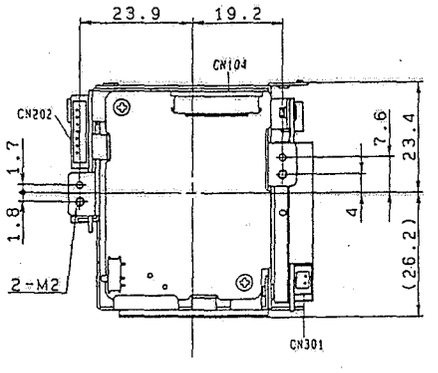
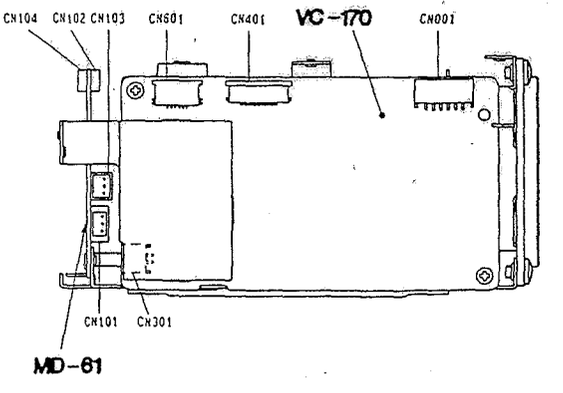
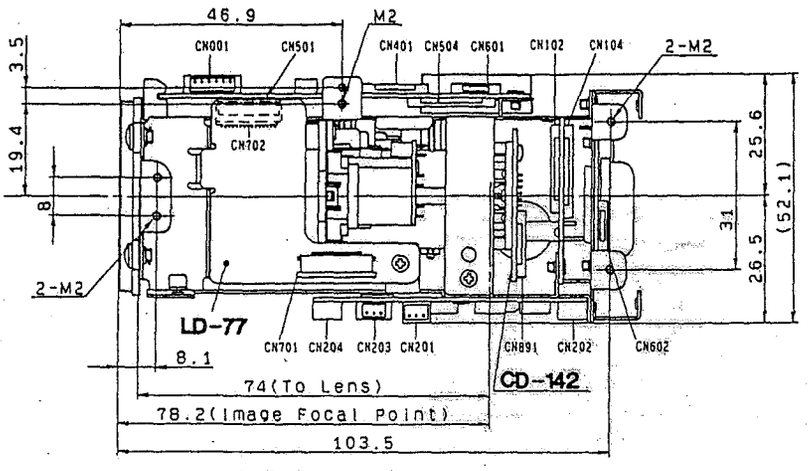


THE REAR FIGURE

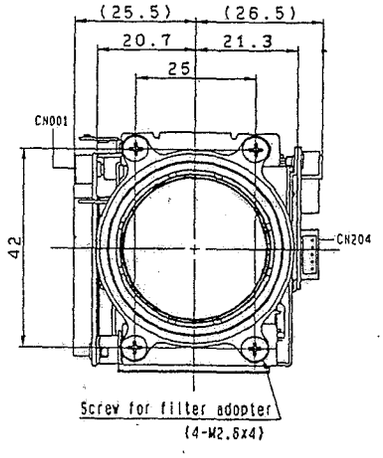


THE LEFT SIDE FIGURE

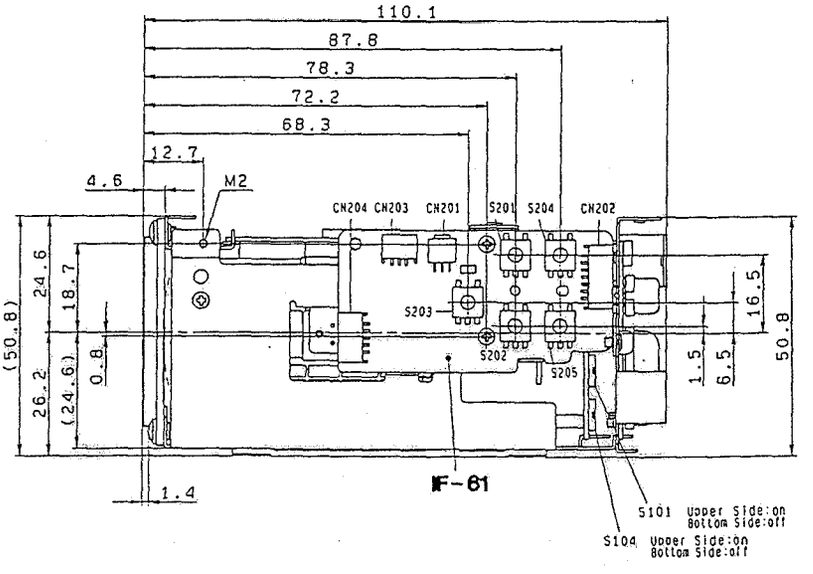
Specifications are subject to change without notice.



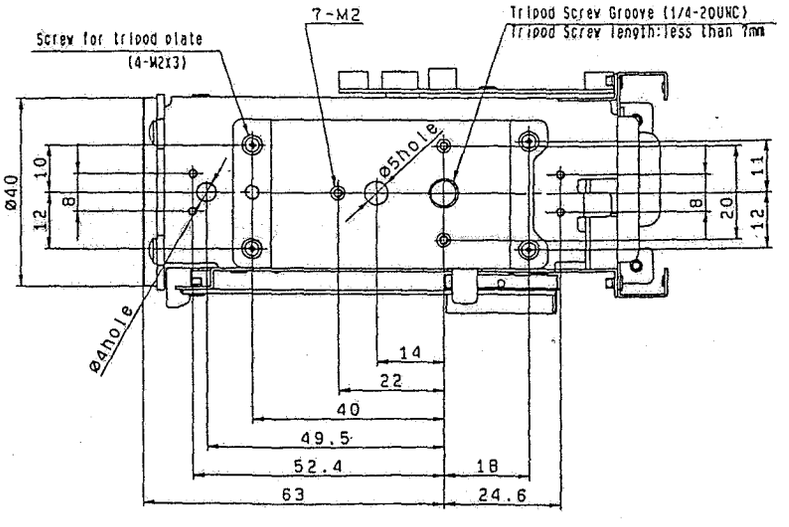
THE TOP FIGURE



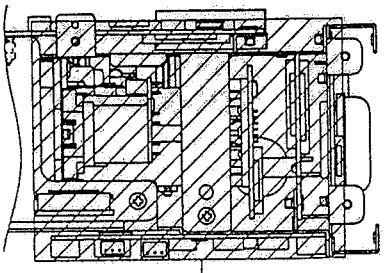
THE FRONT FIGURE



THE RIGHT SIDE FIGURE



THE BOTTOM FIGURE



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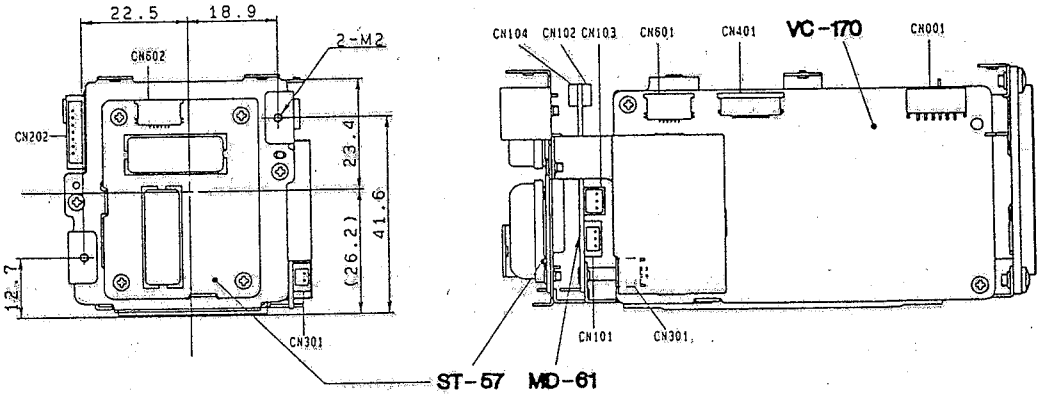


THE REAR FIGURE

THE LEFT SIDE FIGURE

Specifications are subject to change without notice.

5 List of Input/Output Pins

EVI-330/330T/331/331T

VC-170 Board

◇ CN001:6P For Video Output

1. GND	Board side:	JST	S6B-ZR-SM3A-TF
2. C OUT	Housing:	JST	ZHR-6
3. GND	Receptacle:	JST	SZH-003T-P0.5
4. Y OUT			
5. GND			
6. VIDEO OUT			

◇ CN301:2P For power input

1. DC IN (6~12 V)	Board side:	JST	S2B-ZR-SM3A-TF
2. GND	Housing:	JST	ZHR-2
	Receptacle:	JST	SZH-003T-P0.5

* CN502 is not used. CN601 is not used in the EVI-330/331.

MD-61 Board

◇ CN103:3P Connected to IF-61 Board (CN201). For lens control

1. ZOOM/FOCUS SW	Board side:	SMK	CGP4703-0110
2. GND	Housing:	SMK	CGP1203-0101
3. AF ON LED	Receptacle:	SMK	CTA1126-0101

◇ CN101:3P Connected to IF-61 Board (CN203). For ECCP and remote control

1. ECCP DC/UNREG OUT	Board side:	JST	S3B-ZR-SM3A-TF
2. ECCP SIG IN/OUT	Housing:	JST	ZHR-3
3. GND	Receptacle:	JST	SZH-003T-P0.5

◇ CN104:27P. For connecting FK-63 board (Optional board)

JST 27FLZ-RSM1-TB

1. POSITION PRESET LED
2. OUTDOOR LED
3. INDOOR LED
4. ONE PUSH WB LED
5. AWB LED
6. POSITION 5 LED
7. POSITION 4 LED
8. POSITION 3 LED
9. AF ON LED
10. POWER LED
11. POSITION 6 LED
12. POSITION 2 LED
13. POSITION 1 LED
14. BRIGHT LED
15. BACKLIGHT LED
16. AE LED
17. SHUTTER PRIORITY AE LED
18. POSITION RESET LED
19. D 3.5V
20. ZOOM/FOCUS SW
21. ZOOM/WB/ POSITION SW
22. AE/BRIGHT /BACK LIGHT SW
23. WB/POSITION SW
24. POSITION SW
25. SHUTTER SW
26. STEADY SHOT ON /OFF SW
    (Only used in EVI-330T/331T.)
27. GND

* CN105, CN106, CN107 are not used.

IF-61 Board

The IF-61 board is mounted to the side of the EVI-330/330T/331/331T at shipment.
In this board, zoom, focus (key switch) and ECCP/RS232C control can be performed simply. The ECCP/RS232C protocol requires the contract of security agreement. For details, call SONY.
The IF-61 board and EVI-330/330T/331/331T are already connected by two 3P-3P harnesses.

◇ CN201:3P Connected to EVI-330/330T/331/331T (MD-61 board, CN103)

1. ZOOM/FOCUS SW
2. GND
3. AF ON LED

Board side:	SMK	CGP4703-0110
Housing:	SMK	CGP1203-0101
Receptacle:	SMK	CTA1126-0101

◇ CN202:7P For Zoom/Focus remote control

1. ZOOM WIDE
2. ZOOM TELE
3. AF ON/OFF
4. FOCUS NEAR
5. FOCUS FAR
6. GND
7. NC

Board side:	JST	S7B-ZR-SM3A-TF
Housing:	JST	ZHR-7
Receptacle:	JST	SZH-003T-P0.5

◇ CN203:3P For connecting EVI-330/330T/331/331T (MD-61 board, CN101)

1. ECCP DC/UNREG OUT
2. ECCP SIG IN/OUT
3. GND

Board side:	JST	S3B-ZR-SM3A-TF
Housing:	JST	ZHR-3
Receptacle:	JST	SZH-003T-P0.5

◇ CN204:5P For connecting RS-232C control

1. RTS (RS)
2. DSR (DR)
3. S-GND
4. CD (DCR)
5. NC

Board side:	JST	S5B-ZR-SM3A-TF
Housing:	JST	ZHR-5
Receptacle:	JST	SZH-003-P0.5

The IF-61 board zoom and focus can be controlled simply (key switch).

6 Outline of Functions

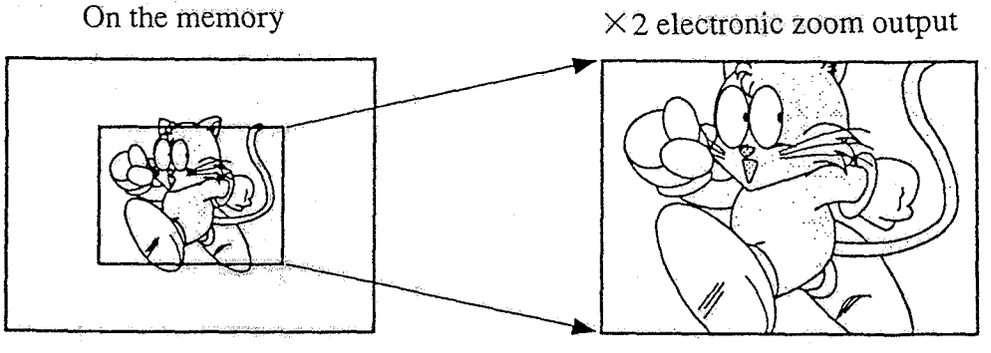
The EVI-330/330T/331/331T has the following functions. For details of how to control these functions, refer to Chapters 7 and 8.

◇ Zoom

The stepping motor is adopted for the zoom motor.
The zoom rate of the EVI-330/331 is 12 times. Zooming between tele (64.8 mm) and wide (5.4 mm) is possible.
Tele/wide can also be controlled manually.
By adopting the electronic zoom (2 times), zooming up to 24 times has been realized for EVI-330T/331T.
From max. wide to 12 times zoom, zooming is performed by the optical zoom.
From 12 times to 24 times zoom, zooming is performed in such a manner that the electronic zoom operates between 1 time to 2 times zoom with the 12 times optical zoom state maintained.

Electronic Zoom (Digital Zoom)

The 2 times electronic zoom is adopted for the EVI-330T/331T.
The electronic zoom function enlarges the pixels vertically and horizontally as well as the center of the subject.
For 24 times zoom, the vertical and horizontal pixels are enlarged 2 times and the effective pixels become 1/4.
Although the resolution degrades, a sharp image can be obtained.

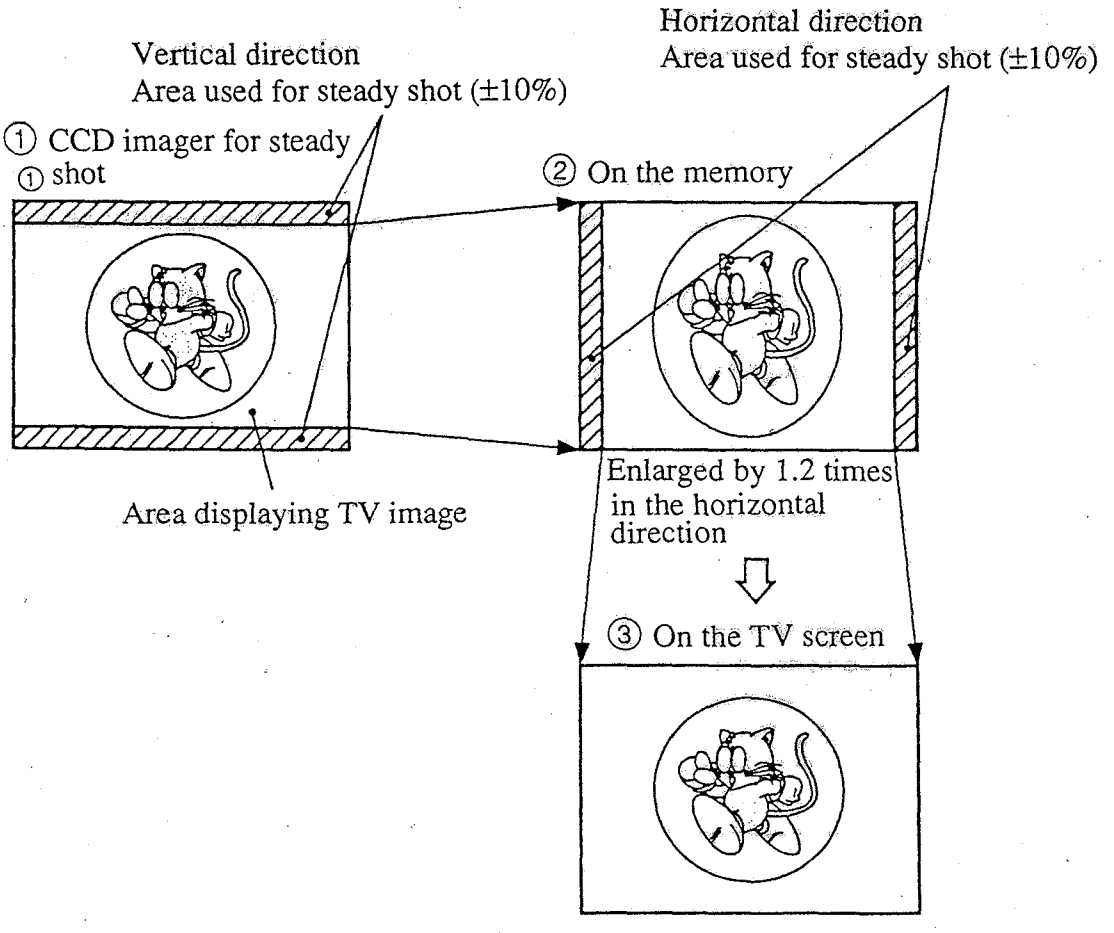


◇ Focus

An inner focus system with superior follow-up is employed. The auto-focus adjusts the focus to high frequency components with high video signal level, that is components with high luminance and strong contrast in the measurement area.
Focus from the front of the lens (1 cm) (wide end) to infinity can be adjusted. The shortest focusing distance becomes longer the closer it is to the tele side. For tele, focus can be adjusted 80 cm from the front of the lens.

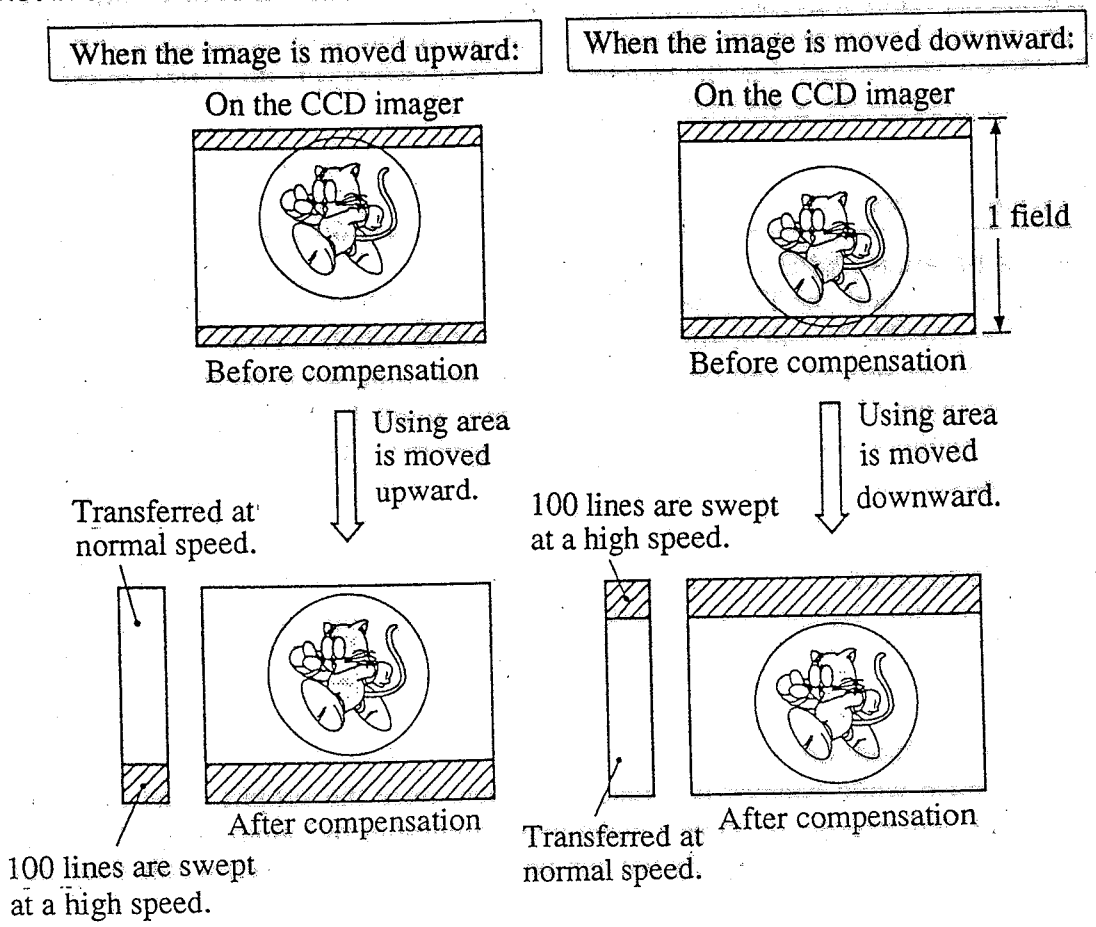
◇ Steady Shot — Electronic Image Stabirizing (EVI-330T/331T)

The EVI-330T/331T uses a CCD imager which has more pixels than normal CCDs by approx. 15% for steady shot.
The movement of a camera is sensed by the X and Y axis sensors (ST-57 board) at the back of the camera, and the effective image area is changed so that the movement of the subject is minimized.
The CCD imager has more pixels than normal CCDs by approx. 15% in the vertical direction, which are not used for normal operations but as a steady shot area for the vertical direction...①
However, as the pixel density of the CCD imager differs according to the area and the aspect ratio is changed, the image output becomes longer in the vertical direction....②
This image is enlarged by 1.2 times in the horizontal direction by the memory to obtain the correct image....③
At this time, the enlarged area is moved right or left for compensation according to the vibration.

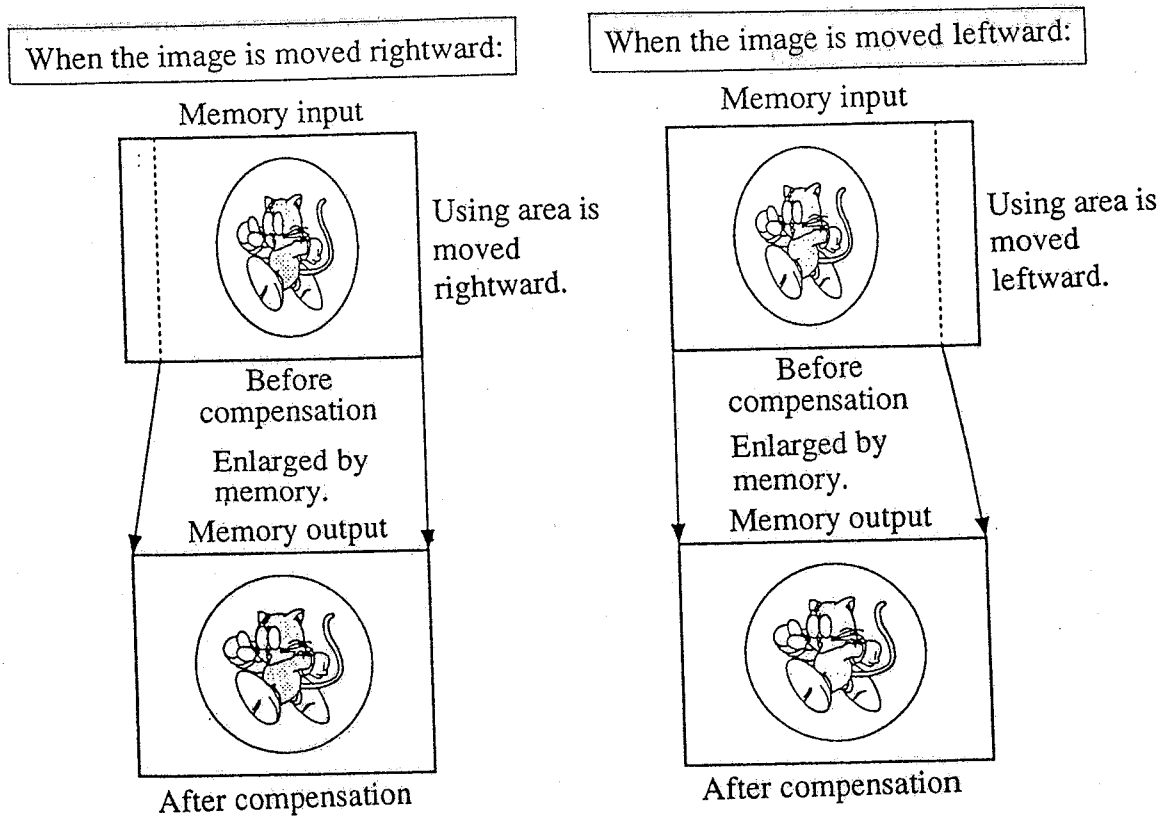

Horizontal direction
Area used for steady shot (±10%)
Vertical direction
Area used for steady shot (±10%)
① CCD imager for steady shot
② On the memory
Area displaying TV image
Enlarged by 1.2 times in the horizontal direction
③ On the TV screen

In the EVI-330T/331T, the steady shot can be turned ON/OFF using S101 of MD-61 board of the main unit. (OFF at shipment)

Steady shot in the vertical direction


When the image is moved upward:
On the CCD imager
Before compensation
Using area is moved upward.
Transferred at normal speed.
100 lines are swept at a high speed.
After compensation
When the image is moved downward:
On the CCD imager
1 field
Before compensation
Using area is moved downward.
100 lines are swept at a high speed.
Transferred at normal speed.
After compensation

Steady shot in the horizontal direction



When using the following functions, the external circuit or ECCP or RS232C control is required. If these are not used, the auto-white balance and 1/60 sec shutter serve is standard. (For the EVI-331/331T, 1/50 sec shutter serves as the standard. For EVI-330T/331T, the 1/100 sec shutter serves as the standard at STEADY SHOT ON.)

◇ White Balance

Auto white balance (AWB)

For this unit's AWB, the TTL method is adopted to reproduce the natural colors of the subject as closely as possible by calculating the color data of the whole screen.

To prevent the subject from being all white by operating white balance function blindly, the operation range of auto white balance function is limited. This function also judges whether indoor or outdoor from the brightness and changes the withdraw range of auto white balance accordingly.

Preset white balance

The preset white balance can be selected from fixed indoors (3200K) and fixed outdoors (5800K).

One push white balance

The one push white balance is a function which, once the subject is set to certain lighting conditions, will expose the subject under these conditions by gaining white forcibly.

The color is reproduced naturally without being affected by the surrounding conditions of the subject.

When set, the one-push white balance trigger is sent assuming that the white subject occupies more than 1/2 of the screen.

The one-push white balance data is provided when the lithium backup SW is ON even though the power is off (2 hours for fully-charged battery). When the lithium backup SW is off, the data will be lost when the power is turned off. Therefore, when turning off the power, set the one-push white balance again.

◇ Automatic Exposure Mode

When the automatic exposure (AE) mode is set, the auto-iris, AGC (auto-gain), 1/60 sec shutter (EVI-331/331T is 1/50 sec shutter) will operate.
When the EVI-330T/331T STEADY SHOT is turned on, only the shutter will automatically become 1/100 sec.
When the power is turned on with the lithium backup off, the automatic exposure mode will be set.

◇ Shutter Priority Automatic Exposure Mode

The iris value is automatically adjusted to the electronic shutter selected. Gain is also adjusted automatically.

1	1/60 (PAL:1/50)	11	1/300	21	1/1700
2	1/60	12	1/350	22	1/2000
3	1/75	13	1/425	23	1/2500
4	1/90	14	1/500	24	1/3000
5	1/100	15	1/600	25	1/3500
6	1/125 (PAL:1/120)	16	1/725	26	1/4000
7	1/150	17	1/850	27	1/6000
8	1/180	18	1/1000	28	1/10000
9	1/215	19	1/1250	29	
10	1/250	20	1/1500	30	

◇ Auto flickerless Function

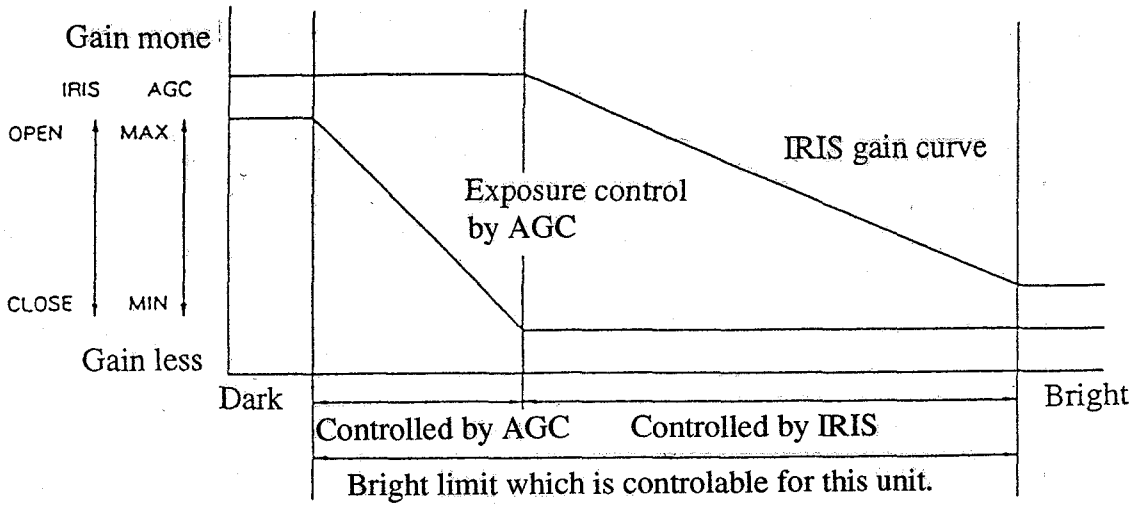
This unit is equipped with an auto flickerless function which automatically reduces flicker which occurs
when exposed under fluorescent light with a power frequency of 50 Hz. To completely eliminate flicker, set the shutter to 1/100 seconds.

◇ Backlight Compensation

The backlight compensation function increases the brightness in the automatic exposure mode and shutter priority exposure mode (auto-iris AGC). It is useful for correcting the images of subjects which have turned out dark due to background light (sunlight, lamps, etc.). The brightness when this function is off (auto iris, AGC) is taken as a reference, and the brightness can be increased up to 12 dB. Although the subject becomes brighter, the background will become white and saturate. The iris and gain operations remain in the auto mode.

◇ Bright Control

The bright control function adjusts brightness with both gain and iris.
Exposure is controlled by gain when dark and by iris when bright.
As both gain and iris are fixed, they are used when exposing at a fixed camera sensitivity. When switching from the automatic exposure mode or shutter priority automatic exposure mode to the bright mode, the state before switching is held momentary.



STEP	GAIN	IRIS	STEP	GAIN	IRIS	STEP	GAIN	IRIS
1	18dB	F1.8	9	0dB	F2.4	17	0dB	F9.6
2	15dB	F1.8	10	0dB	F2.8	18	0dB	F11
3	12dB	F1.8	11	0dB	F3.4	19	0dB	F14
4	9dB	F1.8	12	0dB	F4	20	0dB	F16
5	6dB	F1.8	13	0dB	F4.8	21	0dB	F19
6	3dB	F1.8	14	0dB	F5.6	22	0dB	F22
7	0dB	F1.8	15	0dB	F6.8	23	0dB	F28
8	0dB	F2.0	16	0dB	F8	24	0dB	CLOSE

◇ Shutter Priority Bright Control

When switching from the shutter priority bright control to the bright mode, the bright mode control can be performed while maintaining the shutter speed set in the shutter priority automatic exposure mode. When switched to the shutter priority automatic exposure mode, automatic exposure is started at the maintained shutter speed (both iris and gain are automatic).

◇ Position Preset

Camera functions can be preset in 6 different ways using the position preset function.
Using this function, zoom position, focus (auto, manual positions), white balance, shutter, bright control (iris, gain) can be set to the desired state instantaneously without adjusting backlight compensation each time.
The electronic zoom can be preset as the zoom position for the EVI-331/331T.

• Using position preset with the FK-63 board (optional board)

Preset method

When camera is set to the desired state, position can be preset by pressing the desired position number button while pressing the preset button.

Drive method

When the desired position number button is pressed, each function will be preset. If not preset, the function will be set into the factory preset state.

Reset method

By pressing the desired position number button while pressing the reset button, the function will be set into the factory set state.

Checking method

While the preset button or reset button is pressed, the preset position number LED will be lit.

◇ Factory Preset

The position preset function sets the camera functions to the factory preset state before preset and after reset. The full-auto state is set at shipment. By writing in the internal non-volatile memory using the factory preset function, data can be preserved semi-permanently.
Using this function, camera functions can be set freely before preset and after reset using the position preset function when the power is started up (when lithium backup is off).
For the EVI-331/331T, electronic zoom cannot be factory preset at the zoom position.
As special tools are required for setting the factory preset, consult Sony for details.

* Note
When using factory preset, the camera will be out of warranty.

7. Function Control

Functions that can be controlled differ according to the control method used. For details of the function control, refer to Chapter 8.

Control method / Controlable functions	IF-61	RM-95	VISCA /RS232C	ECCP /RS232C	Extra Circuit
Zoom Tele/Wide	○	○	○	○	○
Zoom Fast Tele/Wide				○	○
Zoom Position (Preset/Detect)			○	○	
Focus Auto/Manual selection	○	○	○	○	○
Focus Far/Near	○	○	○	○	○
White Balance mode selection			○	○	○
One Push White Balance (Preset)			○	○	○
White Balance mode detection			○	○	
Bright Control Up/Down			○	○	○
Backlight Compensation (Preset/Reset)				○	○
Shutter speed Up/Down			○	○	○
Shutter Priority (Preset)			○	○	○
Shutter speed (Detect)			○	○	
Position Preset (Preset/Reset)			○	○	○
Position Preset (Detect)			○	○	

IF-51 (optional) is required for controlling the VISCA/RS232C control.
For connecting the extra circuit FK-63 (optional), use CN104 on the MD-61 board of the main unit.

8. Control Methods

Camera Control Methods

◇ Power Supply

Supply 6.0V to 12.0V to CN301 (VC-170 board) using the harness provided.
Red (No. 1) is +.

◇ Video signal output

Composite video and Y/C video are output to CN001 (VC-170 board).

◇ Backup switch (MD-61 board S104)

- Zoom switches and focus positions (position preset) can be memorized in camera by turning on the backup switch.
- The backup battery is a re-chargeable battery.
- It can backup 2 weeks when fully charged.
- At shipment, it is set to off.

Function Control Methods

◇ IF-61 board

The IF-61 board can control the focus and zoom of the lens easily (key-switch) and has ECCP/ RS232C interfase.
The IF-61 board can be disconnected from the side frame of the camera.

Auto focus ON/OFF

- When the AF ON/OFF switch is pressed, ON/OFF is switched and the LED lights up when AF is ON.
- When the FOCUS FAR or NEAR switch is pressed when auto-focus is off, focus can be adjusted.

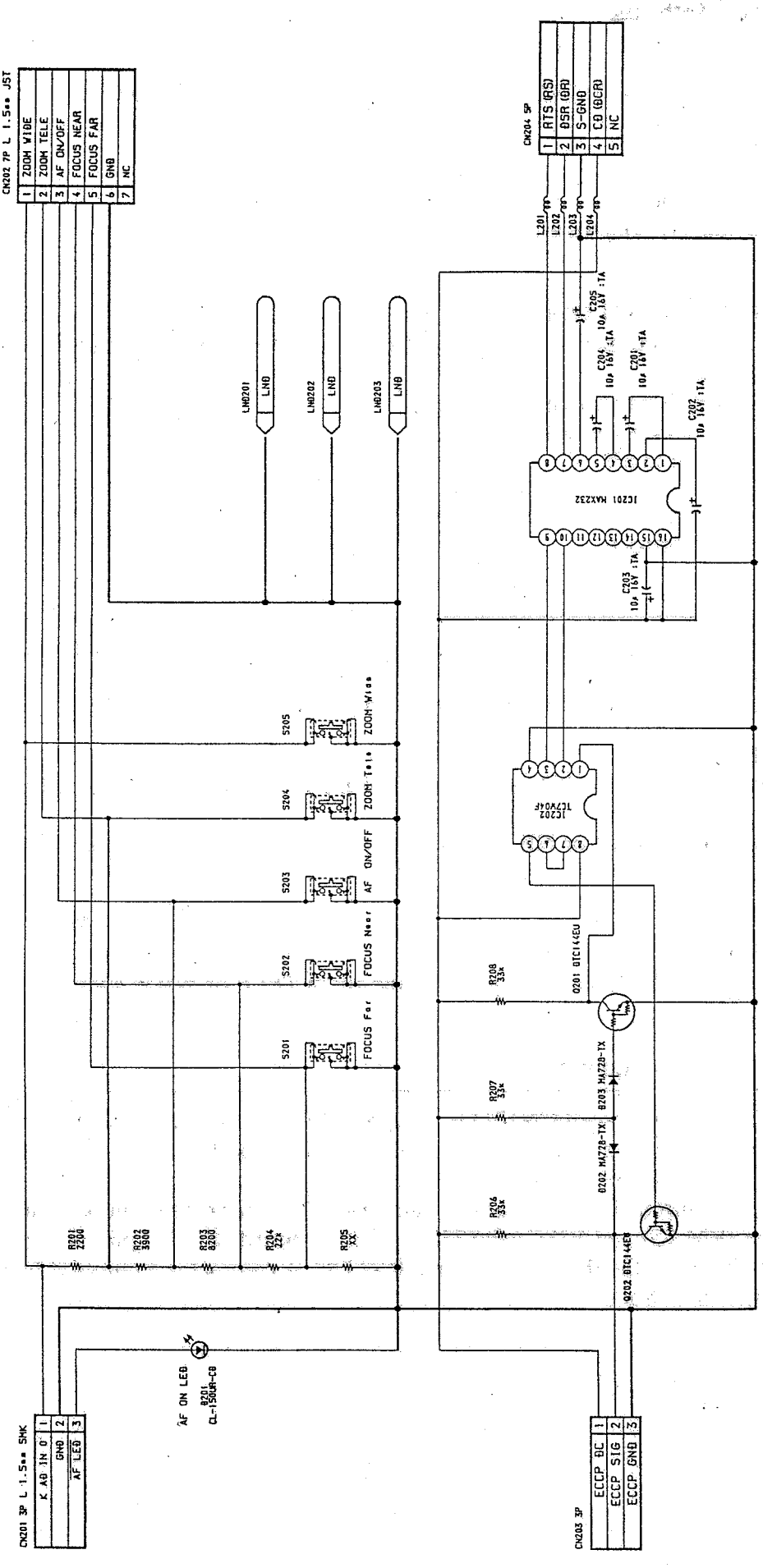
Zoom adjustment

Zoom (image angle) can be adjusted by pressing the zoom TELE or WIDE switch.

◇ ECCP (EVI camera control protocol)

An ECCP terminal (MD-61 board CN101) is equipped for each function. These terminals can be controlled directly by serial communication (9600 bit/sec async bidirectional communication). When using, disconnect the 3P harness.)
The camera can be controlled and the camera data read. These terminals can be connected to the remote controller (RM-95) and VISCA/RS232C interface board (IF-51, optional). ECCP can be controlled from CN204 on the IF-61 board using RS232C. A contract is required if ECCP is to be used. For details, contact Sony.

IF-61 Circuit Diagram



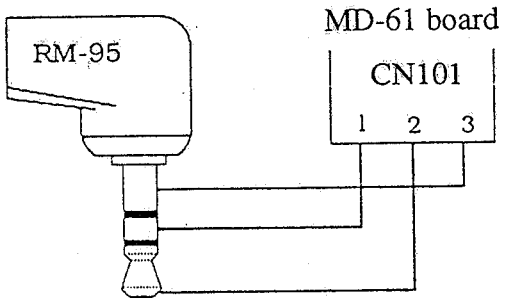
◇ Using VISCA/RS232C Interface Board/IF-51

By using the interface board/IF-51 (optional), functions can be controlled using the RS232C board of computers, etc.
It is possible to control a camera and read the camera data.
The IF-51 board can be fixed to the camera side. In this case, the IF-61 board needs to be disconnected.
For details of how to use, contact Sony.

* Note
There are zoom and focus key switches on the IF-51 board, but these cannot be used for EVI-330/330T/331/331T.
To use the IF-51 board, do not connect the key switch connector (CN204) to the MD-61 board CN103 (black).

◇ Using the Remote Controller RM-95

By using the Sony Camcorder remote controller (RM-95) on the market, zoom and focus can be controlled.
Connect to CN101 (3P, white) as follows.



◇ FK-63 Board (Optional Board) Control

The following functions can be controlled by connecting the FK-63 board.
CN104 of the MD-61 board (27P) is used.

* Reference Circuits

CN104:27P

1. POSITION PRESET LED
2. OUTDOOR LED
3. IN DOOR LED
4. ONE PUSH WB LED
5. AWB LED
6. POSITION 5 LED
7. POSITION 4 LED
8. POSITION 3 LED
9. AF ON LED
10. POWER LED
11. POSITION 6 LED
12. POSITION 2 LED
13. POSITION 1 LED
14. BRIGHT LED
15. BACKLIGHT LED
16. AE LED
17. SHUTTER PRIORITY AE LED
18. POSITION RESET LED
19. D3.5V (Power supply)
20. ZOOM WIDE SW, ZOOM TELE SW, AF ON/OFF SW, FOCUS NEAR SW, FOCUS FAR SW
21. ZOOM WIDE FAST SW, ZOOM TELE FAST SW, POSITION 6 SW, INDOOR SW, OUTDOOR SW
22. BACK LIGHT SW, BRIGHT SW, SHUTTER/BRIGHT UP SW, SHUTTER/BRIGHT DOWN SW, ONE PUSH TRIGGER SW
23. POSITION RESET SW, POSITION PRESET SW AWB SW, ONE PUSH WB SW, ONE PUSH TRIGGER SW
24. POSITION 1 SW, POSITION 2 SW, POSITION 3 SW POSITION 4 SW, POSITION 5 SW
25. SHUTTER SW
26. STEADY SHOT ON/OFF SW (Used only for EVI-330T/331T.)
27. GND

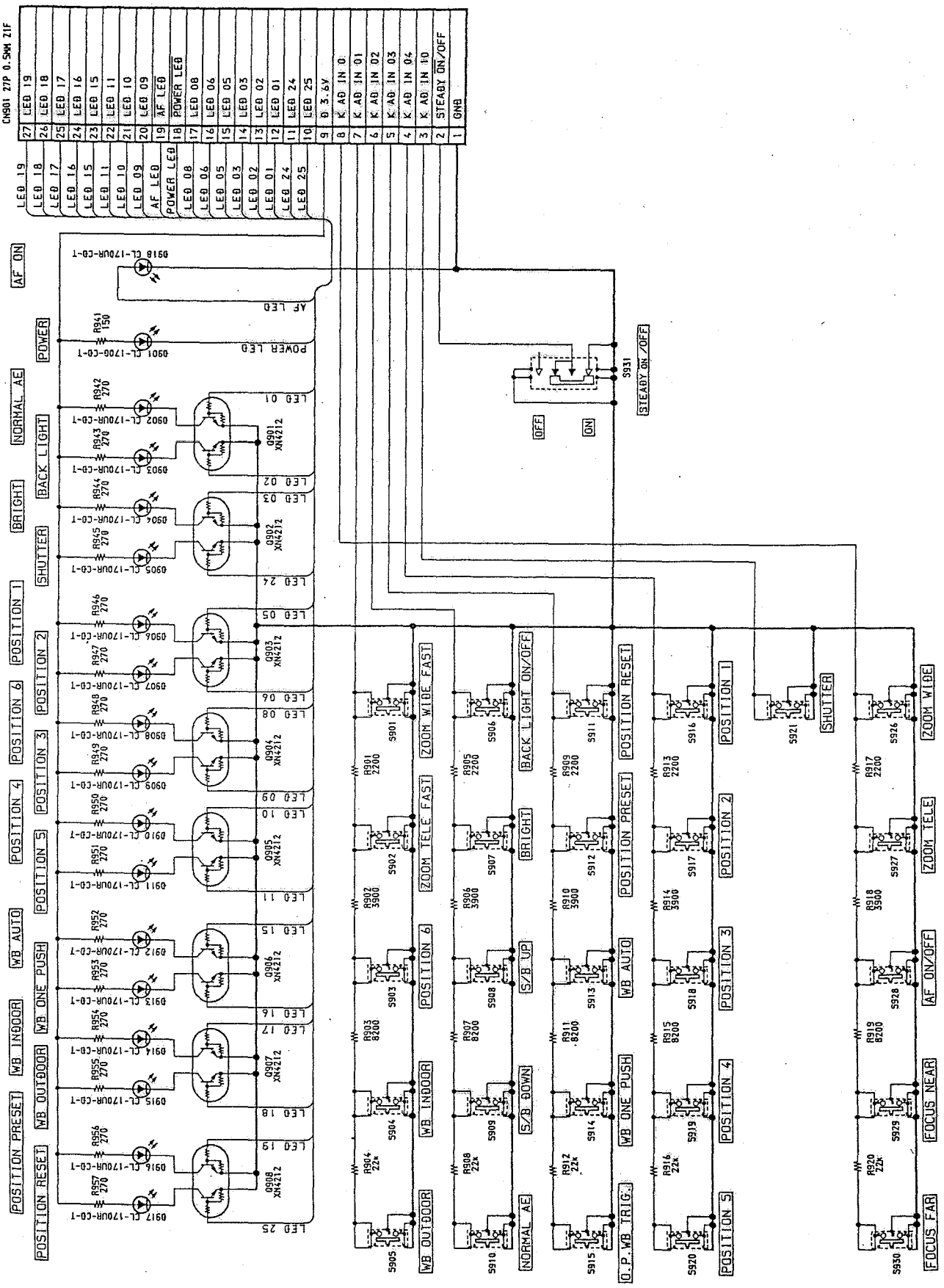
Controllable functions

- White balance selection
- Position preset
- Bright control
- Backlight compensation
- Shutter speed control
- Zoom, focus control
- Steady shot on/off (Only used for EVI-330T/331T.)

When using the FK-63 board for the EVI-330T/331T, switch the Steady Shot to ON/OFF, using S931 (Pin 26, Steady Shot ON/OFF SW) on the FK-63 board, set S101 on the MD-61 board to OFF.

MD-61 S101	ON	ON	OFF	OFF
FK-63 S931	ON	OFF	ON	OFF
Steady Shot	ON	ON	ON	OFF

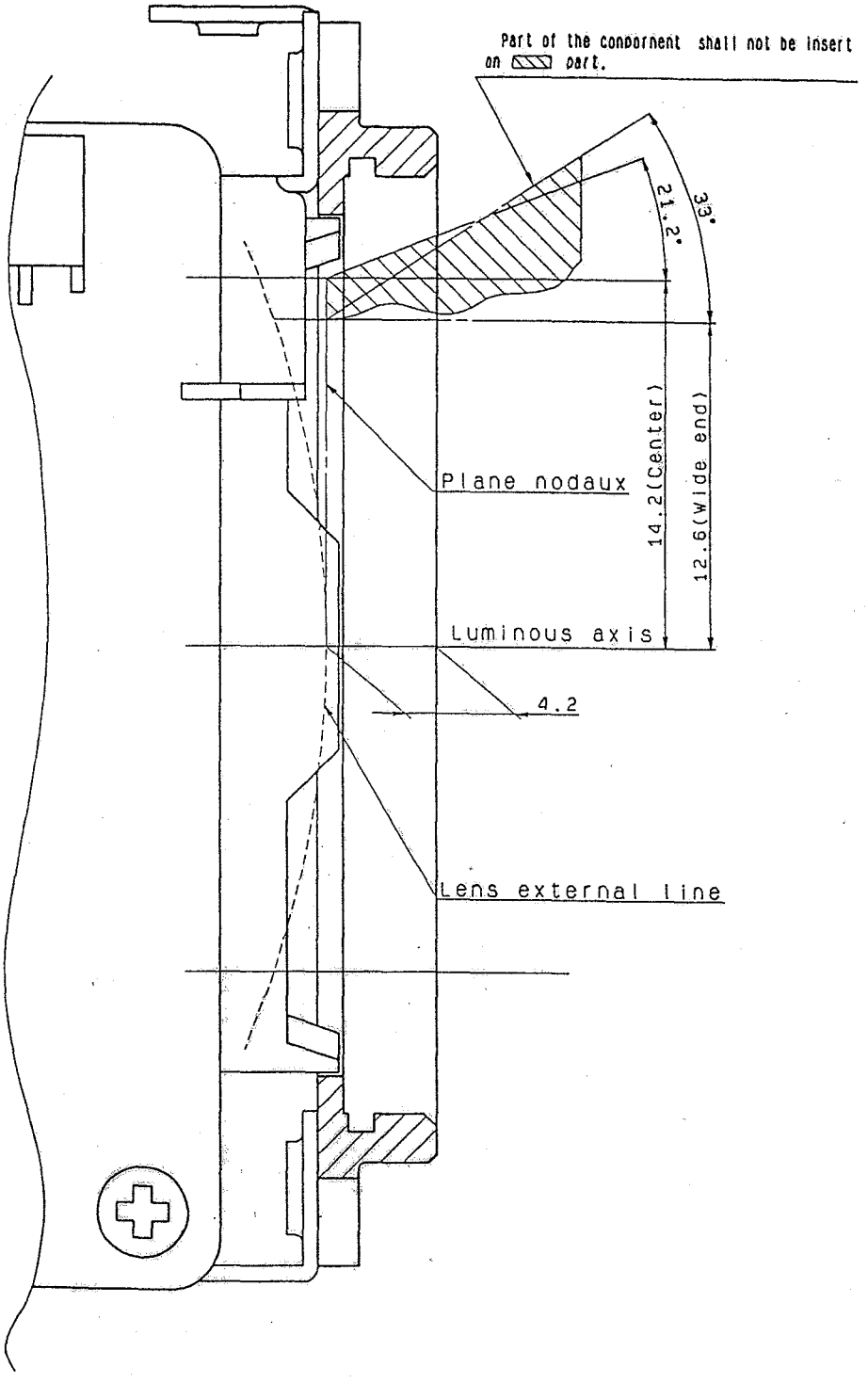
FK-63 Circuit Diagram (Optional)



9. Installation

◇ Installation

Use the screws for the tripod at the bottom or M2 screws of the chassis.
The plate for attaching the tripod on the bottom can be removed.
When designing the housing, etc., refer to the dimensional allowance as shown in the figure below.



10. Handling Precautions

- Do not apply bending force to the printed circuit board.
- Do not supply excessive voltage. (Max 13.2V)
  When more than 9V is used, the camera will become hot. Do not suspect a fault.
- When touching the board, to prevent electrostatic discharge failure, use the ground-band. When packaging it, use the anti-electrostatic packaging.
- When transporting the unit, place it in the carton box in which it was shipped from Sony.
- For factory preset and when adjustments are performed, the camera will be out of warranty.

11. Others

- External synchronization is not available. RGB output is not available.
- The image angles differ between EVI-330 and EVI-330T/EVI-331 and EVI-331T.
  For details, see Chapter 2.
- The zoom limiter (TELE side/WIDE side) and proximity focus limiter can be set as camera functions.
  For details, contact Sony.
- For camera functions, the iris priority mode, gain priority mode, and exposure compensation are not adopted.
- When mounting EVI-330T/331T on the tripod, turn off the steady shot function.

12. Optional Accessories

◇ Function Control Switch Board/FK-63 Board

The following functions can be used with the FK-63 board.
MD-61 board CN104 (27P) is used.

- Zoom TELE/WIDE
- Zoom fast TELE/WIDE
- Auto focus ON/OFF
- Focus Far/Near
- White balance selection
- Bright control Up/Down
- Shutter speed Up/Down
- Backlight compensation Preset/Reset
- Position preset Preset/Reset
- Steady shot ON/OFF (EVI-330T/331T only)

◇ Interface Board/IF-51

VISCA

Functions can be controlled using the RS232C of the computer, etc. using the VISCA interface board/IF-51 board (optional).
The IF-51 board board can be fixed to the camera side. In this case, the IF-61 board must be disconnected.
Zoom and focus cannot be operated using the buttons on the IF-51 board.
For details, contact Sony.

◇ Attachment lens

A 37 mm diameter accessory screw is attached at the front of the lens so that Camcorder conversion lens, such as wide conversion lens, close-up lens, etc. can be attached.